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Intelligence of the crow.

I find, by referring to my note-books, that I have witnessed several times the occurrence of crows breaking mussels by dropping them from considerable heights (SCIENCE, p. 513). In one instance, I had my field-glass with me, and made careful notes of what took place. The crows had assembled on Duck Island, in the Delaware River, and were busily engaged in running along the edges of the sand-bars, exposed at low tide. Every few moments, one of them would rise up to a height of fully fifty feet, carrying a mussel *in its beak*, and, flying inland to a distance of one hundred yards, would let the mussel fall on the meadow. Usually the force of the fall was sufficient to break the shell. The crows, as soon as they had let fall their burden, immediately returned to the island and bars, and gathered more mussels. This was continued until the returning tide made mussel-hunting impracticable. In no instance did the crows carry the food they were gathering by their feet. There is one fact with reference to this habit of the crows which is, I think, indicative of greater intelligence than the mere fact of lifting an object and dropping it in order to break it. This is, that all the mussels so dropped were left undisturbed until the returning waters made further fishing impracticable, when the birds hastened to feast on the results of their intelligent labor. Marvellous as it may seem, these crows recognized the nature of tides, and, *knowing* their time was short, made as good use of it as possible.

If any more striking evidence of intelligence on the part of birds can be produced, let it be placed on record forthwith.

C. C. ABBOTT.

Impregnation in the turkey.

An interesting fact respecting our domestic turkey has recently come to my notice. A friend, finding that a stray turkey had recently come upon his premises with the intention of remaining, finally shut it up in his chicken-yard, where it was permanently confined with no other associates than the chickens. The prisoner at once began to lay eggs, and, after a nest was formed, sat upon them, hatching out, in the usual time, nine healthy turkeys. Three others, that had been hatched by a hen, died soon for want of care. The eggs, thirteen in all, were laid without any connection with a turkey-cock. An impregnation, then, that must have taken place before the fowl was placed in confinement, must have answered for all the eggs. Agassiz states that one copulation is supposed to answer for more than one egg in the case of the turkey, but adds that the supposition needs confirmation. The facts here mentioned seem conclusive, as there was no possible way in which connection could have taken place after the turkey was confined.

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THE GRAPE PHYLLOXERA IN FRANCE.

Compte rendu des travaux du service du Phylloxera. Année 1882. Procès verbaux de la session annuelle de la Commission supérieure du Phylloxera. Rapports et pièces annexes. Lois, décrets et arrêtés relatifs au Phylloxera. Paris, Impr. nat., 1883. 603 p. 4°.

THE *Compte rendu des travaux du service du Phylloxera* for the year 1882, just received in this country, makes a large volume, contain-

ing numerous reports of special committees and delegates. The *Commission supérieure du Phylloxera*, which consists of some thirty-seven members, including such well-known investigators as Dumas, Pasteur, Tisserand, Cornu, Balbiani, Marion, Marès, with a number of deputies and senators, was convoked by the minister of agriculture on the 19th of January, 1883. The first sub-committee at the session of Jan. 22 submitted its report, which was accepted by the *Commission supérieure*. This report may be thus summed up:—

After having passed upon 185 proposed remedies, they were unable to award the prize of 300,000 francs offered by the government in 1874, as they recognized in none of the new propositions any merit, whether as to novelty or more desirable methods of application of any insecticide already known. As in previous years, the substances most often recommended were salt, lime, soot, and cinders. It is well known that salt has produced nothing but bad effects on the vine, lime has amounted to little, while soot and cinders are but adjuncts to other modes of treatment. Among plants, Pyrethrum, tobacco, Quassia, and other similar products, are still urged by applicants for the prize, notwithstanding that the uselessness of such products has been shown by past experience. In fact, the proposed remedies range from dynamite and electricity to prayers and processions.

The second sub-committee reported through its chairman, M. Cornu, on the spread of the insect through France, the report being accompanied by a map which shows that nearly one-half of France is infested with Phylloxera. The map indicates particularly (1) the 'arondissements' in which the presence of Phylloxera has not yet been observed, and into which it is forbidden to introduce any vines from phylloxerated districts or from foreign countries; (2) districts in which the insect occurs quite generally, but into which the introduction of foreign vines, or vines from other phylloxerated districts, is not authorized; and (3) badly infested districts, into which the introduction of foreign and French vines from phylloxerated districts is authorized. These last constitute nearly one-third of the area of France.

It will be well for those, who, allured by the liberal offer of the French government, venture to propose a Phylloxera remedy, to remember that one of the absolute conditions for the awarding of the prize is that the remedy shall be based on positive and authentic experience. A great many visionary and theoretical propo-